

Biometry of the genus *Gephyrocapsa* during the past 2 million years - implications for taxonomy, stratigraphy, and evolution.

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The evolution of the coccolithophore genus *Gephyrocapsa* in the northern Atlantic was investigated with biometric methods. Coccolithophore assemblages from four different ODP/DSDP sites were analyzed, revealing sixteen distinct morphotypes. Nine of those could be assigned to established *Gephyrocapsa* species, and we added the biometric information to the existing description of the species. Of the remaining morphotypes, four are introduced as new species, and the rest represent variations of existing species.

The genus *Gephyrocapsa* Kamptner currently includes six extant and ten fossil valid species, as well as a large number of different morphotypes that have been assigned by various authors. In general, classification of *gephyrocapsids* is based on variations in morphology, including the length and width of the distal shield, the length and

width of the central area, and the angle between the long axis and the bridge that spans the central area. In addition, other morphological features, such as ornamentation, shape of the bridge, and slits in the distal shield, have been used to separate species.

During the Quaternary, with increasing morphological differentiation within this genus, there was a rise in its number of species. The diversification within this genus is interpreted as an adaptive radiation that occurred as species of this genus were becoming the most abundant taxa in the coccolithophore assemblages of the North Atlantic.

We will discuss in particular the recurring increase in size of certain morphotypes, which appears to be of global nature and compare this to existing data and similar patterns in other coccolithophore genera at this time and during other times in the geologic past.